ABSTRACT

EFFECTS OF ALKALINE pH ON THE STABILITY OF SALICYLAMIDE

Salicylamide is a derivative of salicylic acid with analgesic effect. Salicylamide is a weak acid with value of pKa 8,2. It causes salicylamide become unstable at a range of 2 units above the pKa. The stability of salicylamide in various pH (7,0; 8,0; 9,0; 10,0; and 11,0) has been studied. The buffer solution 3000 mg/L of salicylamide in various pH were studied at 40 ± 0,5^{o}C for 6 hours. Then it was determined at different times (0h, 1h, 2h, 4h, and 6h) and analysed using Thin Layer Chromatography (TLC) – Densitometry. The analysis is done using silica gel TLC plates 60 F_{254} as the stationary phase and a mixture of dichloromethane : acetone (4 : 1 v/v) as the mobile phase. The results showed that salicylamide follows first order reaction. Salicylamide at various pH buffer solution (7,0; 8,0; 9,0; 10,0; and 11,0) have rate constant (k) value $2{,}30.10^{-2} \pm 1{,}22.10^{-2}$; $3{,}73.10^{-2} \pm 1{,}89.10^{-2}$; $2{,}06.10^{-2} \pm 0{,}54.10^{-2}$; $3{,}64.10^{-2} \pm 0{,}39.10^{-2}$; and $1{,}40.10^{-2} \pm 0{,}28.10^{-2}$ hour^{-1}, respectively. Rate constant at pH 11 is the lowest than others due to resonance effect and resistance to nucleophilic attack by hydroxide ion.

Keywords : salicylamide, stability, tlc – densitometry, pH